9.0 DP ROAD TRACT

9.1 Affected Environment

9.1.1 Land Use

The DP Road Tract is located between the western boundary of Technical Area (TA) 21 and the major commercial districts of the Los Alamos townsite and is near the currently active operations of LANL (see Figure 9.1.1-1, DP Road Tract Layout). The tract is approximately 50 acres (20 hectares). The western section of the tract contains two structures on approximately 2 acres (0.8 hectare), one of which houses a major portion of the LANL archives. Approximately 26 acres (10.5 hectares) of relatively level land is covered with native vegetation. Portions of DP Canyon and BV Canyon (which flows into Los Alamos Canyon) are within the tract boundaries and include areas generally too steep for development (slopes greater than 20 degrees). Access into the site is from Trinity Drive onto DP Road.

Vegetation at the site includes ponderosa pine forest and pinyon-juniper woodlands, both with open shrub, grasslands, and wildflower areas. The DP Road Tract also contains potentially sensitive wildlife habitat.

With the exception of the buildings already mentioned, there are no other permanent buildings within the boundaries of the DP Road Tract (DOE 1998b). However, adjacent land use includes various businesses along DP Road. The Knights of Columbus building stands just off the intersection of DP Road and Trinity Drive on the north side of DP Road. Several hundred yards (approximately 365 meters) of vacant land lie between this building and the Los Alamos Fire Department training facility. The north leg of the DP Road Tract continues east into DP Canyon, between businesses along DP Road and residences along East Road.

In the past, portions of the DP Road Tract were used for LANL fueling facilities (north) and for a trailer park and playground area (south). Currently, there is no LANL activity within the tract with the exception of archive storage. A short trail crosses the southeast "thumb-shaped" part of the tract and provides access from DP Road to the old Los Alamos Ranch Trail, which crosses along the north side of Los Alamos Canyon (see Figure 3.2.1-2 in Chapter 3). The trail is sometimes used for hiking. There are no other recreational opportunities at the site.

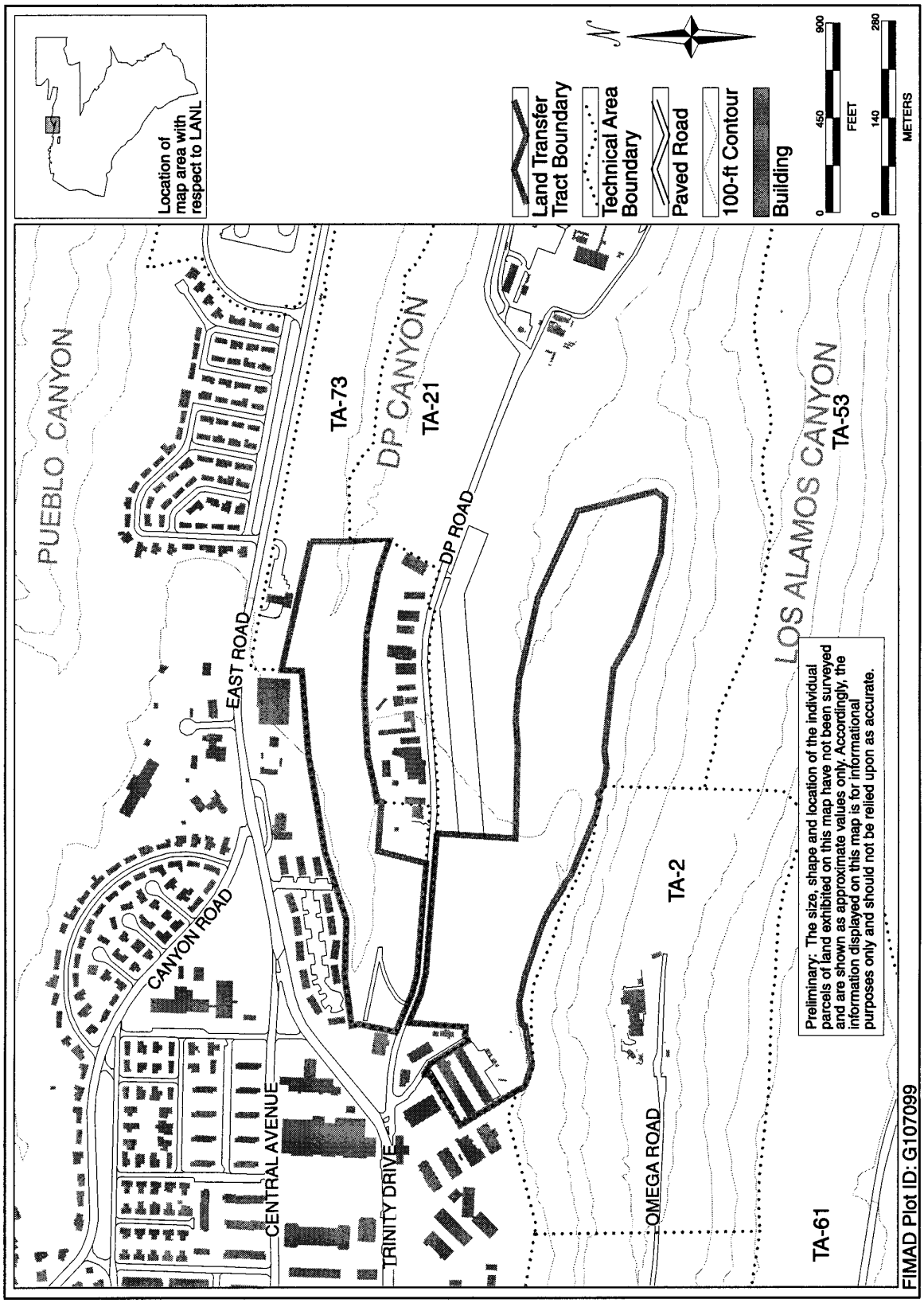

Figure 9.1.1-1. DP Road Tract Layout.

Structures or facilities that are associated with Federal, State, or local permits are located on or near the DP Road Tract. Examples of such facilities or structures are air monitoring stations and wastewater discharge outfalls. Radiation stations are located on or near the tract. Figure 9.1.1-2 shows the location of these facilities relative to the DP Road Tract.

9.1.1.1 Environmental Restoration

There are 10 potential release sites (PRSs), 10 DOE-owned structures, and 2 canyon systems on this tract. Eight of the PRSs have been categorized as surface units, and two as subsurface units. Nine PRSs have had some sampling and characterization, with the detection of metals, organic chemicals, and radioactive isotopes. Structures include two large archive buildings, six simple storage sheds, one transportainer, and a backflow preventer, which is part of the water supply system. A portion of DP Canyon is included in this tract.

Figure 9.1.1.1-1 shows areas with potential contamination issues (PCIs) within this tract, as well as areas with no known contamination. PCI acreage is estimated to total 18 acres (7 hectares). The north and south legs of the tract appear to have no PCIs.

9.1.2 Transportation

An existing collector road, DP Road serves this tract (see Figure 9.1.1-1). This collector road has the capability to service approximately 2,000 passenger cars per hour (pcph) in both directions. DP Road can be accessed from Trinity Drive, a four-lane major road west of DP Road, and from the east by a two-lane street, East Road.

Trinity Drive currently has an approximate capacity of 7,200 pcph, and East Road has a capacity of approximately 2,400 pcph. Data provided by the County of Los Alamos show that Trinity Drive at East Road carried approximately 1,100 vehicles in the peak hour near the vicinity of DP Road in January 1998. The average annual traffic on Trinity Road at East Road near the site is approximately 10,350 vehicles per day. This results in a level of service (LOS) D for the two-lane street, which is defined as below average operating conditions approaching "stop and go" traffic flow. The two-lane section of these roads was evaluated because it is the constraint for roadway operation.

Increasing Trinity Drive at East Road traffic to account for expected growth in the area over the next 20 years degrades the operation to LOS E in the year 2018. This LOS represents the maximum capacity of the road and is the operating condition just prior to traffic jam conditions.

The existing intersection of DP Road and Trinity Drive is a blind curve. Westbound Trinity Drive traffic, transitioning to a one-lane section at this location, does not have a clear view of eastbound traffic. The allowable room for turning onto DP Road and from DP Road onto Trinity Drive is currently insufficient, and the turn lane configuration can be confusing.

9.1.3 Infrastructure

Figure 9.1.3-1 shows the location of structures, roads, and utility lines for the DP Road Tract. Industrial and security fence lines are shown on Figure 9.1.3-2. The tract is largely undeveloped, containing only two major structures, located at the west end of the tract. One structure houses the LANL archives, while a LANL subcontractor, Johnson Controls Northern New Mexico (JCINNM), uses the other. DP Road bisects the tract, but most of the area has no paved roads.

All utilities are available to this site. A natural gas supply line passes close to the boundary of the site near the southwest corner. Electrical power is available to the site. A water supply line enters the tract at the southwest boundary. A radioactive liquid

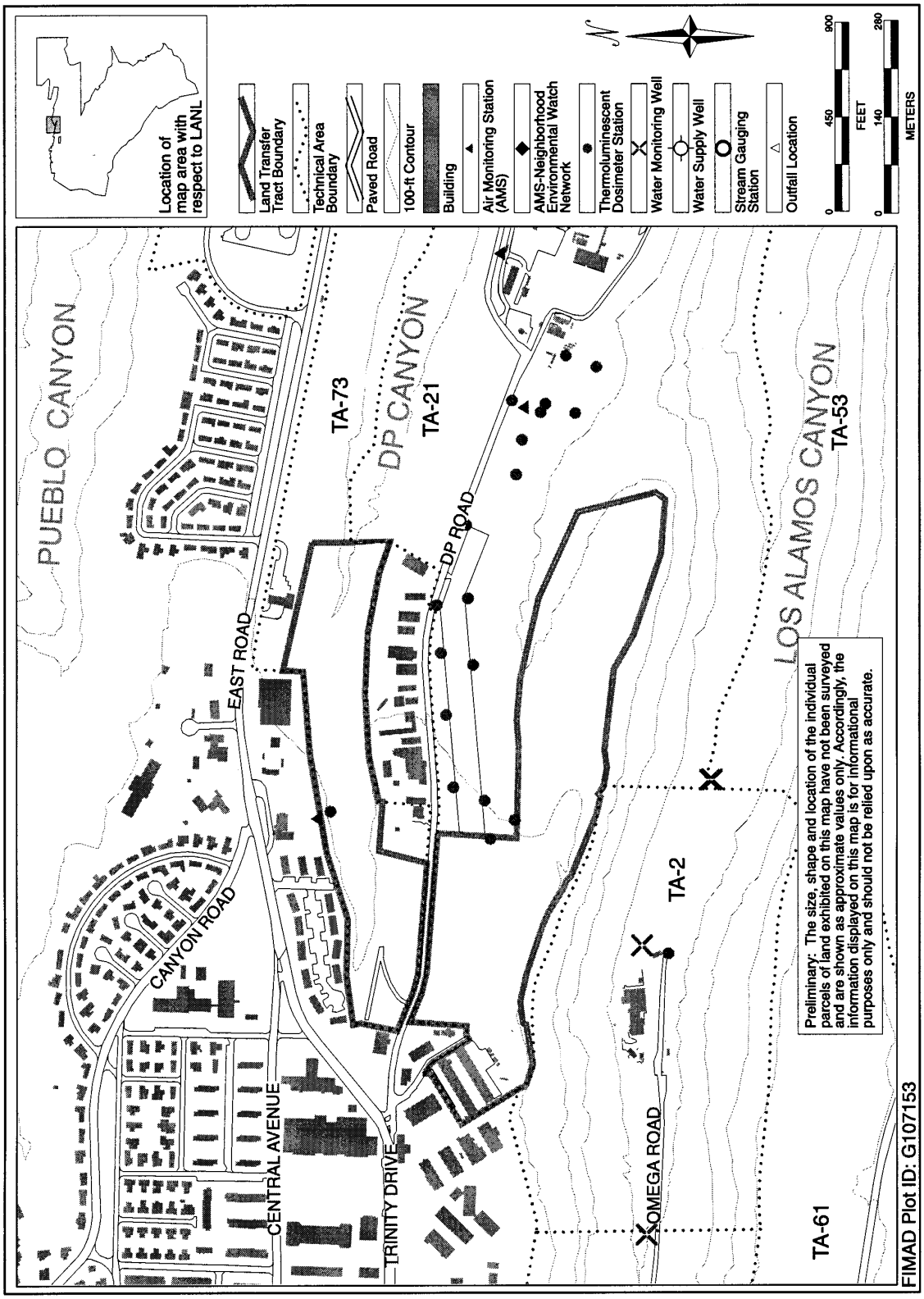

Figure 9.1.1-2. DP Road Tract Monitoring Stations and Outfall Locations.

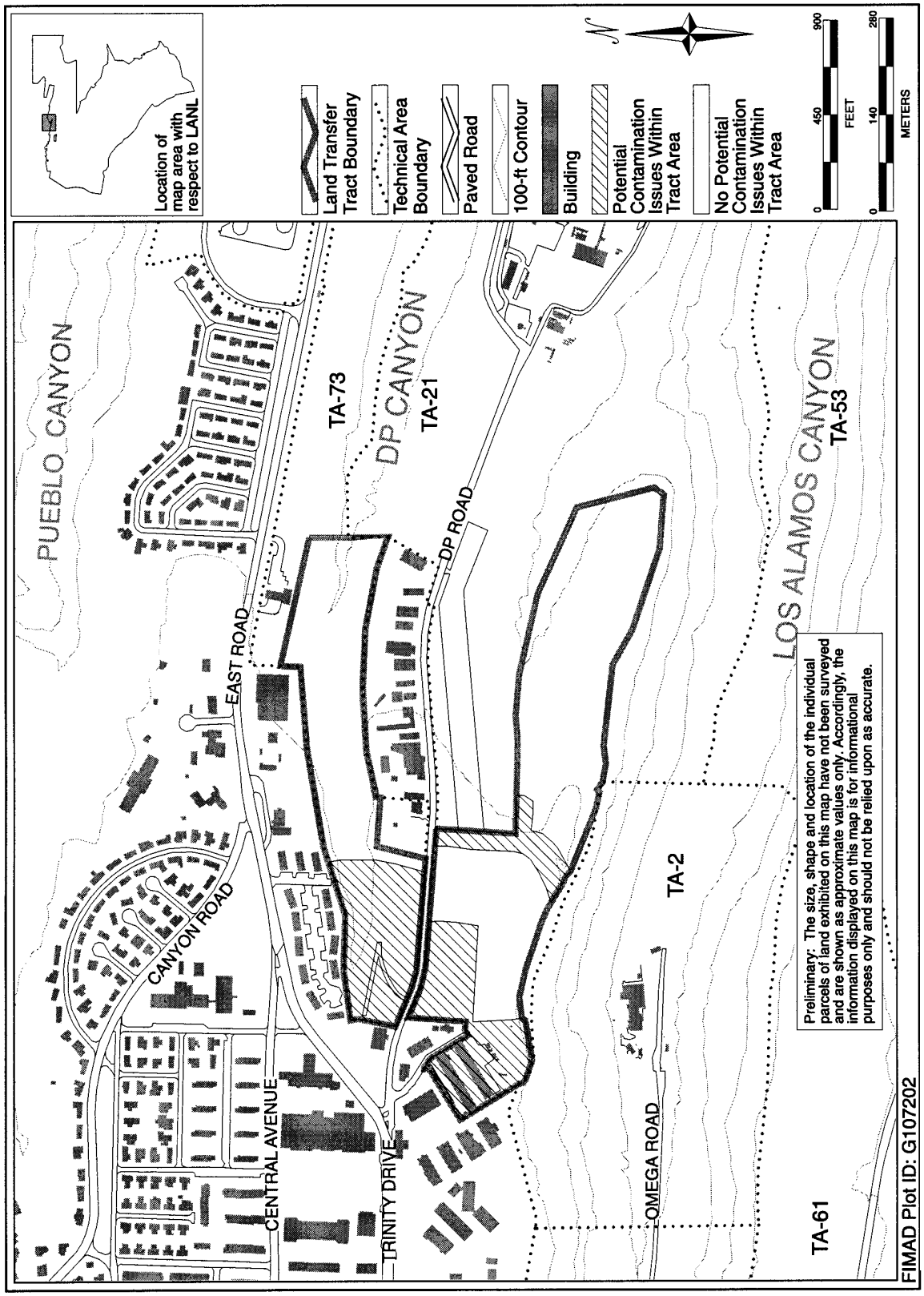

Figure 9.1.1.1-1. DP Road Tract Potential Contamination Issue Areas.

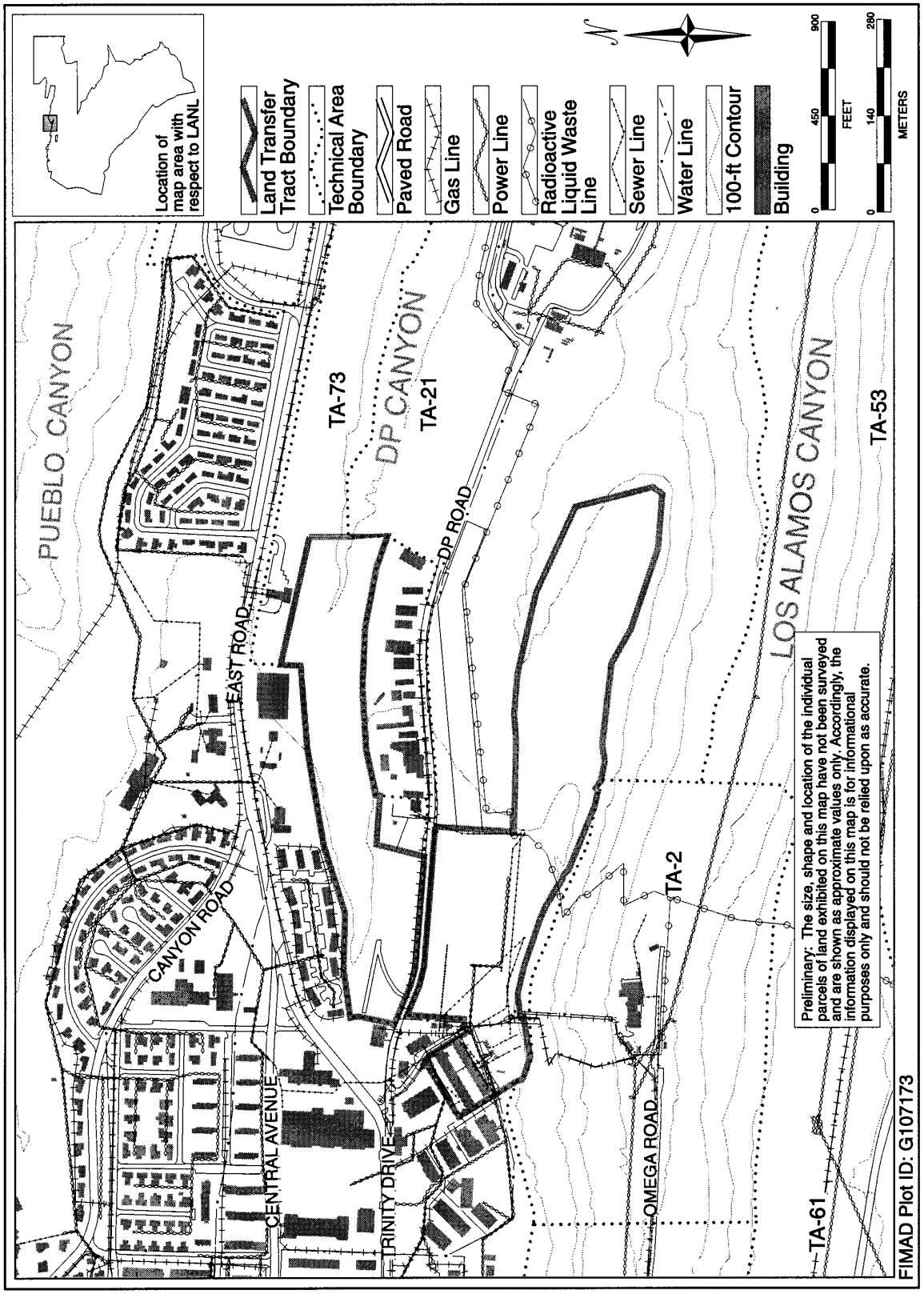

Figure 9.1.3-1. DP Road Tract Utilities and Infrastructures.

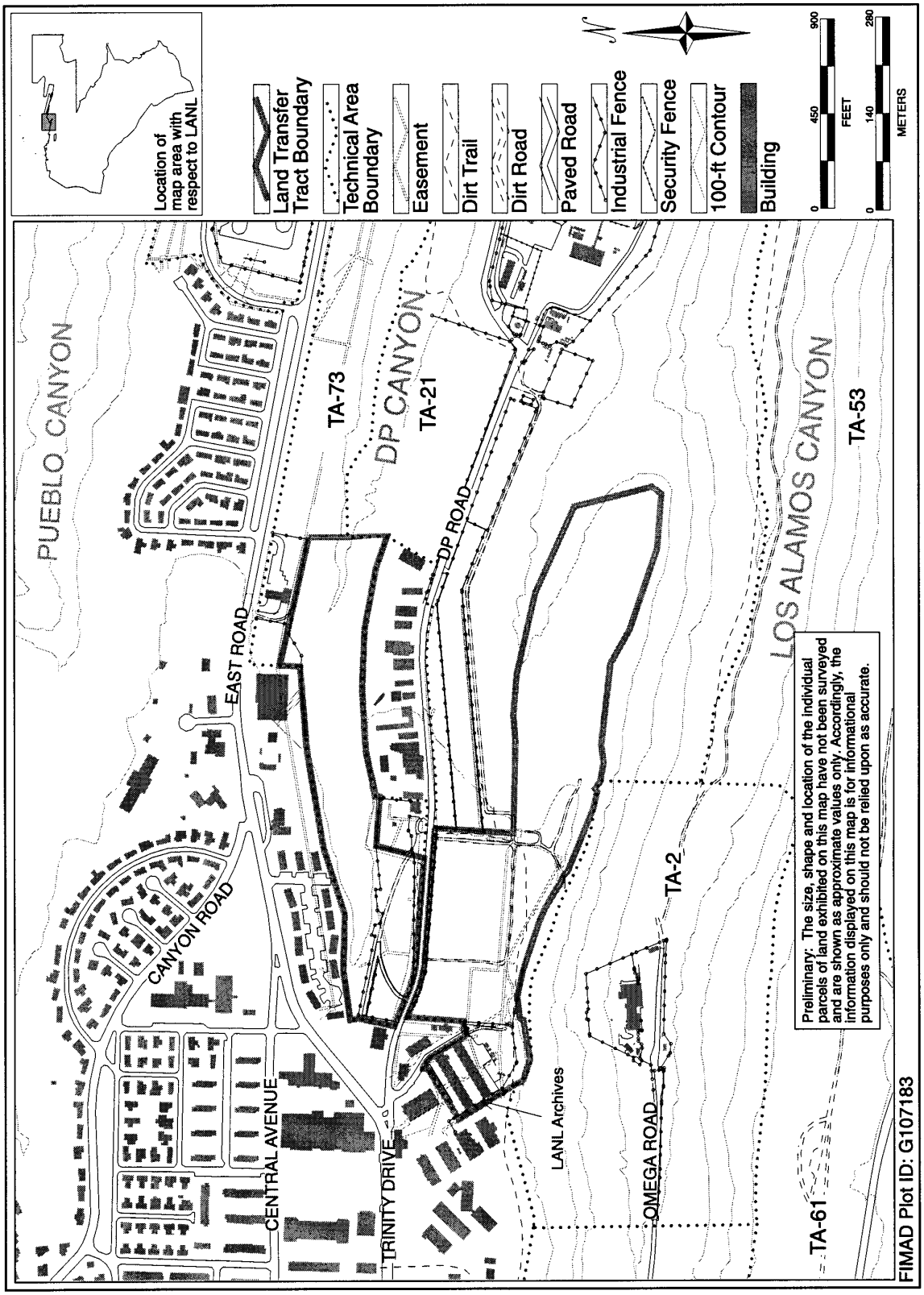

Figure 9.1.3-2. DP Road Tract Industrial and Security Fence Lines.

waste (RLW) line traverses the southern leg of the tract. The RLW line currently is scheduled to be cleaned and plugged. This tract is not metered separately for any utilities, and no figures for current utility usage are available.

9.1.4 Noise

Ambient noise levels for the DP Road Tract are affected primarily by vehicles using DP Road and Trinity Drive. The intersection of these two roads is congested at times, as an estimated 10,000 to 11,000 vehicles per day travel along Trinity Drive at this point. There are light industrial and commercial activities along the road, but the contribution of these activities is minor compared to noise from traffic.

Noise measurements have been taken for the DP Road Tract as part of a biological assessment of the impacts of land disposal and use upon threatened and endangered species (the Mexican spotted owl). All measurements were done in the C-weighted decibel (dBC) scale, because this scale better represents sounds heard by animals than the A-weighted decibel (dBA) scale does. Background noise was determined to average 66 dBC (48 dBA) (DOE 1997a, page 24).

9.1.5 Visual Resources

The DP Road Tract includes areas that are covered with vegetation as well as some areas with development (primarily along DP Road). The land is forested but fairly common in terms of visual character. Views to the site are primarily from DP Road, TA 2, and developed areas south of East Road located to the north of the tract. There are views of mountains looking east and west on DP Road. There are some views from the edge of the mesas into adjacent canyons, although these views often are obstructed by vegetation. This tract was analyzed by assigning two rating units to the tract based roughly on the areas with manmade modifications or lack of modifications within the tract. Rating Unit 1 includes the area adjacent to the DP Road and the area referred to as "West" where the archives are located. Rating Unit 2 includes the areas referred to as "North" and "South" but is exclusive of the area directly adjacent to the road.

After scenic quality, distance zone, and sensitivity components were combined using the Inventory Class Matrix, it was determined that the areas in Rating Unit 1 of the tract fall into Scenic Class III, and the areas in Rating Unit 2 fall into Scenic Class IV. These classes represent moderate and low public value for the visual resources, respectively.

9.1.6 Socioeconomics

The most meaningful economic region of influence (ROI) for all of the tracts is the regional setting described in Chapter 3 of this CT EIS. Labor and housing markets extend well beyond any of the tract boundaries affected by the proposed land transfer. This tract is primarily used to house the LANL archives. There is little other ongoing development on the land and little or no employment associated with activities on this tract.

9.1.7 Ecological Resources

Vegetation present on the DP Road Tract is primarily ponderosa pine forest and pinyon-juniper woodland, both containing open shrub, grassland, and wildflower areas. Most of the tract has been disturbed by previous industrial activities, and at one time it contained a trailer park and a playground. Flora and fauna are characteristic of the region. At least 30 mammal species, including 15 bat species, 80 bird species, 7 reptile and amphibian species, and 154 plant species are present in the vicinity of the tract. Several large game animals, including elk, mule deer, and black bear, use the area. There is no identified floodplain within the DP Road Tract. Adjacent Los Alamos Canyon is a

perennial water source, flowing a few cubic feet per second during most of the year, that supports stretches of riverine and palustrine wetlands. The tract contains suitable habitat for the American peregrine falcon, bald eagle, and Mexican spotted owl. Mexican spotted owl and American peregrine falcon areas of environmental interest (AEIs) are present within the land tract. Noise in the vicinity of the DP Road Tract results from road traffic on East Road, Trinity Drive, and DP Road and from business operations conducted in the area. DP Road is lit at night by security lighting and by commercial lighting from adjacent developed areas.

Biological assessments have been prepared for four other projects within or adjacent to the tract area. Determinations for these projects were a "may affect, but not likely to adversely affect species of Federal protection or concern." Additionally, a biological assessment was prepared for a land lease in upper Los Alamos Canyon. The determination for that project also was "may affect, but not likely to adversely affect federally protected species." The U.S. Fish and Wildlife Service (USFWS) concurred with each determination of effect based upon the specific proposals for site uses and mitigations considered for implementation.

9.1.8 Cultural Resources

The DP Road Tract was used from the Coalition period through the Nuclear Energy period. Prior to DOE use, this tract was part of the Ramon Vigil Spanish land grant. The ROI for this tract includes the land tract itself, plus nearby cultural resources located off the tract. For this tract, these nearby resources are located on LANL and privately held lands.

One hundred percent of the DP Road Tract has been inventoried for historic and prehistoric cultural resources. One National Register of Historic Places (NRHP)-eligible prehistoric site has been recorded within the tract. Historic resources include two Cold War era structures that have been evaluated as potentially NRHP eligible. There is a potential for unidentified resources, including subsurface archaeological deposits and unrecorded burials.

There are no known traditional cultural properties (TCPs) located within the DP Road Tract. Consultations to identify TCP resources have not been conducted. TCPs would not be anticipated on developed portions of the tract.

Additional information on the cultural resources of the DP Road Tract is presented in Appendix E of this CT EIS.

9.1.9 Geology and Soils

The boundaries of the DP Road Tract include areas too steep for development, and the majority of the developable portions of the tract have been disturbed previously by various surface activities (DOE 1999c). Although the tract is heavily developed, it is typified by the Pogna fine sandy loam soil type and steep rock outcrops along the canyon rim. Outcrops are the upper member of the Bandelier Tuff (Tshirege), typical of the Pajarito Plateau. No major surface faulting is evident at the tract, but fracturing along the canyon edge is common in the area. Existing structures are vulnerable to greater than magnitude 7 seismic events (as registered on the Richter scale), and given the sparse vegetation and heavy development, wildfire episodes may have little impact on any increased soil erosion.

9.1.10 Water Resources

The tract is located on the mesa top above Los Alamos Canyon, which is ephemeral drainage in this vicinity. One arm of the tract is in the head of DP Canyon, another ephemeral drainage. DP Canyon receives stormwater runoff from the Los Alamos townsite via a storm drain at the head of the canyon. There are no known springs or wetlands within the tract. There are no

National Pollutant Discharge Elimination System (NPDES)-permitted outfalls within the tract. There are no regional aquifer groundwater test or supply wells within the tract or within a distance of 0.5 mile (0.8 kilometer).

There are no stream gages or established surface water or groundwater monitoring stations located within the DP Road Tract. The closest environmental monitoring locations maintained by the LANL Environmental Surveillance and Compliance Program are for surface water and shallow groundwater in Los Alamos Canyon and for intermediate perched groundwater downstream in DP Canyon and do not pertain to water quality or quantity associated with this tract.

The DP Road Tract does not lie within the 100-year or 500-year floodplains as modeled by LANL for Los Alamos and DP Canyons.

9.1.11 Air Resources

Air quality at the DP Road Tract is primarily affected by LANL operations at TA 21 east of the tract and at the Los Alamos Neutron Science Center (LANSCE) facility on the mesa immediately to the south. Pollutant contributions also arise from vehicles using DP Road and Trinity Drive, commercial activities along DP Road, and the commercial and residential activities of the Los Alamos townsite.

The DP Road Tract is part of New Mexico Region 3, an attainment area that meets National Ambient Air Quality Standards (NAAQS) for criteria pollutants. Except for small amounts of carbon monoxide and ozone resulting from hydrocarbons emitted from motor vehicles, there are no sources of criteria pollutants within the tract itself.

Concentrations of chemicals at the tract are the result of other nearby activities. Commercial activities at the DP Road Tract result in minor emissions of hazardous and other chemical pollutants. Analysis shows that about 130 different chemicals have been or are being used at TA 21, and about 90 at LANSCE. (The tract also abuts the TA 2 Omega West reactor, on the floor of Los Alamos Canyon; but there are no emissions of chemical air pollutants from this "mothballed" facility.) For chemical emissions from activities at both of these technical areas, however, short-term exposures resulting from inhalation of chemical air pollutants at points along the current boundaries of the technical areas were all estimated to be less than health-based standards, and there are no anticipated adverse health effects. Likewise, long-term exposures (for sensitive receptors in Los Alamos and nearby areas) also were estimated to be less than health-based standards (DOE 1999c, Chapter 5).

Analyses for doses from radioactive air pollutants indicate that air concentrations at the DP Road Tract would deliver a dose of approximately 1.5 millirem per year to people residing there year-round, or about 15 percent of the EPA standard (DOE 1999c, Chapter 5). There are no emissions of radioactive air pollutants from activities at the tract itself.

9.1.11.1 Global Climate Change

With the exception of two buildings (where LANL archives are stored and JCINNM employees work), there are no structures or operations within the boundaries of the DP Road Tract. Thus, water and space heating and use of government vehicles comprise the only sources of greenhouse gas emissions on the tract. Carbon dioxide emissions are estimated to be less than 400 tons (363 metric tons) per year.

9.1.12 Human Health

9.1.12.1 The Radiological Environment for the DP Road Tract

This tract is farther than the LANL offsite maximally exposed individual (MEI) is from

LANSCE and is in a more westerly direction from it. As a result, radiological doses are lower at this tract than for the MEI. The LANL SWEIS projects doses to the MEI of 3.1 millirem at the Small Business Center Annex (on East Gate Drive), and approximately 1.5 millirem at the DP Road Tract (DOE 1999c, Chapter 5). The DP Road Tract lies near one of LANL's one-half mile radiation site evaluation circles (See Figure 9.1.12.1-1) due to activities at TA 21's neighboring Tritium Systems Test Assembly (TSTA) and Tritium Science and Fabrication Facility. The radiation site evaluation circles were included in LANL's 1990 Site Development Plan (LANL 1990). These circles were intended to be used as planning tools for site developers and other project managers responsible for siting new facilities or operations to inform them of the presence of existing radiation sources and the need to evaluate their proposed action(s) against this information. The circles are not representative of a particular dose of radiation to the DP Road Tract under either normal or accident conditions, and are noted herein for the purposes of disclosure with regard to the nearest radiation source location relative to the tract. The quantities of radioactive material and other sources of radiation identified by these radiation evaluation circles were evaluated in the 1999 LANL SWEIS, as previously discussed.

Background radiation doses would remain the same as for the Los Alamos townsite. There are no radiological sources present on this tract. Not all of the potential contamination areas have been fully characterized.

9.1.12.2 The Nonradiological Environment for the DP Road Tract

Exposures to nonradiological contaminants via the airborne pathway in the LANL vicinity have already been shown not to be significant for the affected environment (DOE 1999c). No nonradiological emission sources exist on this tract other than those associated with building infrastructure and mobile sources due to vehicular traffic. Nonradiological PRSs present on this tract have been cleaned up, and no further action (NFA) reports have been submitted to the New Mexico Environment Department (NMED) for approval with the intent to remove the PRSs from the *Resource Conservation and Recovery Act* (RCRA) permit.

Two of the three types of natural disasters postulated in the LANL SWEIS could occur on this land (seismic event and wildfire). However, no known hazardous materials are present on this tract that could pose a risk during a natural disaster.

9.1.12.3 Facility Accidents

Chemical Accidents

The LANL SWEIS posits six chemical accidents, as discussed in Chapter 4, Section 4.1.12 of this CT EIS. For all postulated accidents, chemical concentrations in the air plume released by the potential accidents would be below both Emergency Response Planning Guideline (ERPG)-3 (life-threatening) and ERPG-2 (serious health effects) by the time air plume reached the DP Road Tract, even under adverse weather dispersion conditions. Accordingly, chemical accidents have no estimated public consequences at the tract.

Radiological Accidents

There are 13 credible radiological accident scenarios postulated in the SWEIS, as discussed in Chapter 4, Section 4.1.12. Using data from the LANL SWEIS, doses to the MEI at the DP Road Tract have been estimated for each of these, as shown in Table 9.1.12.3-1.

Because there are no residents and no public workers at the tract, the estimated tract

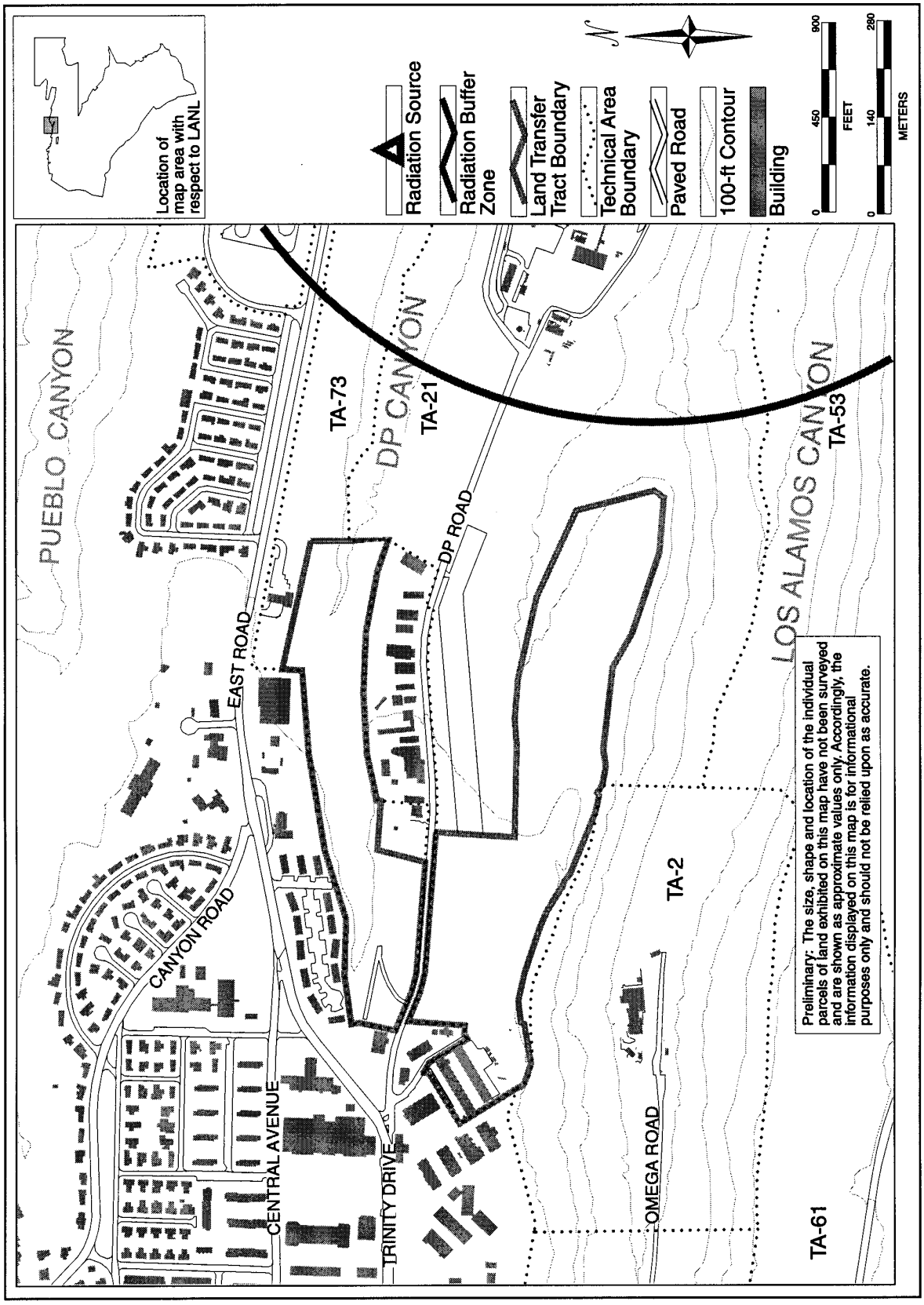

Figure 9.1.12.1-1. DP Road Tract Radiation Site Evaluation Circle.

Table 9.1.12.3-1. MEI Doses at the DP Road Tract Resulting from Hypothetical Accidents at LANL Facilities

ACCIDENT SCENARIO	ACCIDENT LOCATION	FACILITY	FREQUENCY PER YEAR	MEI DOSE (mrem)	ACCIDENT DESCRIPTION
RAD-01	54-38	RANT	1.6×10^{-2}	55	Fire in the outdoor container storage area
RAD-02	03-29	CMR	1.5×10^{-6}	21,000	Natural gas pipeline failure
RAD-03	18-116	Kiva #3	4.3×10^{-6}	42	Power excursion at the Godiva-IV fast-burst reactor
RAD-05	21-209	TSTA	9.1×10^{-6}	5	Aircraft crash
RAD-07	50-69	WCRR	3.0×10^{-4}	260	Fire in the outdoor container storage area
RAD-08	54-230	TWISP	4.3×10^{-6}	70	Aircraft crash
RAD-09A	54-226	TWISP	4.9×10^{-1}	1	Puncture or drop of average-content drum of transuranic waste
RAD-09B	54-226	TWISP	4.9×10^{-3}	44	Puncture or drop of high-content drum of transuranic waste
RAD-12	16-411	--	1.5×10^{-6}	10,000	Seismic-initiated explosion of a plutonium-containing assembly
RAD-13	18-116	Kiva #3	1.6×10^{-5}	62	Plutonium release from irradiation experiment at the Skua reactor
RAD-15A	03-29	CMR	3.6×10^{-5}	80	Fire in single laboratory
RAD-15B	03-29	CMR	3.2×10^{-5}	1,400	Fire in entire building wing
RAD-16	03-29	CMR	3.5×10^{-6}	4	Aircraft crash

Notes: mrem = millirem; RANT = Radioactive Assay and Nondestructive Test; CMR = Chemistry and Metallurgy Research; TSTA = Tritium Systems Test Assembly; WCRR = Waste Characterization, Reduction, and Repackaging; TWISP = Transuranic Waste Inspectable Storage Project

collective dose and estimated excess latent cancer fatality (LCF) are both zero.

Natural Event Accidents

There are five natural event accident scenarios postulated in the LANL SWEIS: four earthquakes and one wildfire. The most severe earthquake (accident SITE-03B) has an estimated frequency of 3×10^{-5} per year, or once every 330,000 years. The postulated earthquake would release chemicals from a number of facilities, including formaldehyde from the Health Research Laboratory (Building 43-01)and chlorine from the chlorinating station within the Los Alamos townsite (Building 00-1109). As discussed above, earthquakes would have no estimated chemical consequences at the DP Road Tract. The most severe postulated earthquake would release significant quantities of radioactive materials from several buildings, especially from the Chemistry and Metallurgy Research (CMR) Building (Building 03-29). Radiological consequences are estimated to result in a maximum dose of approximately 60 Roentgen equivalent man (rem) at the tract.

The postulated site wildfire would burn about 8,000 acres (3,240 hectares) within LANL boundaries, or about 30 percent of LANL, including most of Mortandad Canyon and parts of Los Alamos and DP Canyons east of TA 21. Chemical releases would be less severe than in the postulated earthquake scenarios. The largest quantities of radioactive materials would be released from the transuranic (TRU) waste storage domes at Area G. The maximum dose at DP Road Tract is estimated to be less than 0.1 rem. Such a wildfire has an estimated frequency of 0.1 per year, or once every 10 years.

Because there are no residents and no public workers at the tract, the estimated tract collective dose and estimated excess LCF are both zero for all five natural event accident scenarios.

9.1.13 Environmental Justice

Any disproportionately high and adverse human health or environmental effects on minority or low-income populations that could result from the actions undertaken by the DOE are assessed for the 50-mile (80-kilometer) area surrounding LANL, as described in Chapter 3, Section 3.2.1.14.

9.2 No Action Alternative

9.2.1 Land Use

Under the No Action Alternative, there would be no changes in land use within the DP Road Tract. No additional construction or abandonment of roads or utilities are planned within the tract; the undeveloped portions of the tract would remain so. Similarly, there would no anticipated change to access to or within the site.

9.2.1.1 Environmental Restoration

Characterization and cleanup of this tract would take place as described in DOE's *Accelerating Cleanup: Paths to Closure* (DOE 1998c) or similar plans. The plan focuses on completing work at as many contaminated sites as possible by the end of fiscal year 2006. The plan includes input from all major field sites, including LANL.

The DOE has developed preliminary information based on current knowledge of contamination at the DP Road Tract, as briefly discussed in the Affected Environment portion of this chapter, Section 9.1.1.1. Information includes estimates of sampling and cleanup costs, decommissioning costs, types and volumes of wastes that would be generated, and length of time required to effect the cleanup. An overview of this preliminary information is set forth in Appendix B of this CT EIS. All information has been extracted from the Environmental Restoration Report (DOE 1999b).

This information indicates that PRS cleanup is likely to include four removal actions and in situ containment for two former disposal areas. An undetermined number of structures could be razed, and contaminated sediments would likely need to be removed from both canyon systems. Cleanup of PRSs may require about 7 years for the longest cleanup segment. (Multiple sites can be restored simultaneously, so cleanup duration is determined by the site that requires the most time.) The 10 DOE structures (including the two buildings) are assumed to remain intact. Waste volumes are projected to range up to about 2,970 cubic yards (2,260 cubic meters). Cost estimates for remedial action at this parcel range from about $26,986,000 to $29,070,000. These estimates are based on the information currently available for each PRS or structure, and are subject to change if significantly different information is discovered during the course of investigation or remediation. It should be noted that all PRSs, including those at which no remediation is ultimately required, must be characterized, and the results must be reported to the administrative authority. As a consequence, there are almost always costs and wastes associated with PRSs

that do not require actual "cleanup." Although different cleanup approaches have been identified, it is possible that the administrative authority could require additional actions, resulting in greater waste volumes, a longer cleanup duration, and greater costs. It also should be noted that environmental restoration actions and costs represent only a portion of the actions and total costs that may be required for conveyance and transfer of this parcel. These additional costs may be significant.

9.2.2 Transportation

The No Action Alternative would result in no significant changes in traffic volume on DP Road near the tract. It is expected that the future operational performance of DP Road and Trinity Drive would remain similar to that of the existing performance.

9.2.3 Infrastructure

The No Action Alternative would not result in any substantial changes in the infrastructure or utilities of this tract. The LANL archives would continue to occupy the building in which it is currently located, and JCINNM would continue to use the other building. No appreciable change in utility usage is expected.

9.2.4 Noise

In the No Action Alternative, the DP Road Tract would continue in an undeveloped state. Ambient noises remain the same as today, determined by the amount of traffic on DP Road. Background noise levels would be expected to continue at about 50 dBA.

9.2.5 Visual Resources

It is expected that the visual resources of the tract would remain unchanged under the No Action Alternative.

9.2.6 Socioeconomics

Under the No Action Alternative, there would be no anticipated changes in land use or change in employment on the tract.

9.2.7 Ecological Resources

Under the No Action Alternative, there would be no changes in land use at the DP Road Tract, as described in Section 9.1.1. Therefore, no impact to ecological resources are projected under the No Action Alternative.

9.2.8 Cultural Resources

Under the No Action Alternative, the DP Road Tract would remain the responsibility of the DOE, and the treatment of any cultural resources present would continue to be subject to Federal laws, regulations, guidelines, executive orders, and Pueblo Accords. The use of potentially eligible buildings would continue, and these structures would not be demolished. Planned assessment of these structures would continue, and information would be available to the DOE to ensure stewardship of these resources. Other positive impacts of the No Action Alternative would be the passive preservation of resources due to lack of development. Ongoing negative impacts from natural processes (such as erosion, fire, seismic events, and aging of buildings) on the physical integrity of cultural resources would continue.

9.2.9 Geology and Soils

Under the No Action Alternative, there would be no changes in land use within the DP Road Tract as currently described. No additional construction or abandonment of roads or utilities are planned within the tract; the undeveloped portions of the tract would remain so.

9.2.10 Water Resources

Continuation of the current use of this tract by the DOE would be anticipated under this alternative. Consequences to water resources under the No Action Alternative would be no different than those already existing in the affected environment.

9.2.11 Air Resources

As currently is the case, there would be no emissions of hazardous or other chemical pollutants or radioactive air pollutants from activities at the tract. Accordingly, air quality at the DP Road Tract would be affected primarily by LANL operations at TA 21 to the east and at the LANSCE on the mesa immediately to the south. Pollutant contributions also would arise from vehicles using DP Road and Trinity Drive, commercial activities along DP Road, and commercial and residential activities of the Los Alamos townsite.

The dominant source of criteria pollutants would continue to be traffic along Trinity Drive and DP Road. Analyses show that ambient air quality would remain within standards established by EPA and the State of New Mexico for criteria pollutants (DOE 1999c, Chapter 5).

Commercial activities at the DP Road Tract would result in no emissions of hazardous and other chemical pollutants, so concentrations of these chemicals at the tract would be the result of other activities. Data show that about 130 different chemicals have been or are being used at TA 21, and about 90 at the LANSCE. (The tract also abuts the TA 2 Omega West reactor, on the floor of Los Alamos Canyon, but there would be no emissions of chemical air pollutants from this idle facility.) For chemical emissions from activities at both of these technical areas, however, short-term exposures resulting from inhalation of chemical air pollutants at points along the current boundaries of the technical areas would be estimated to be less than health-based standards. Likewise, long-term exposures (for sensitive receptors in Los Alamos and nearby areas) also would be estimated to be less than health-based standards (DOE 1999c, Chapter 5).

Analyses for doses from radioactive air pollutants indicate that air concentrations at the DP Road Tract would deliver a dose of approximately 2.5 millirem per year to people residing there year-round, or about one-fourth of the EPA standard (DOE 1999c, Chapter 5). There would be no emissions of radioactive air pollutants from activities at the tract itself.

9.2.11.1 Global Climate Change

There would be no changes in land use under the No Action Alternative, and the two facilities and associated use of government vehicles would remain the only sources of greenhouse gases. Emissions estimates would remain at today's levels of less than 400 tons (363 metric tons) of carbon dioxide annually.

9.2.12 Human Health

There would be no identifiable human health consequences of the No Action Alternative for the DP Road Tract. No changes in cancer risk should be expected for this alternative. Radiation doses received at this tract would be estimated to increase from approximately 1.5 millirem (today's levels) to approximately 2.5 millirem per year (DOE 1999c, Chapter 5). No significant nonradiological increases in exposures would be expected. It is presumed that visitors would have adequate time to evacuate the premises for wildfires. Because warnings are usually not given for seismic events, the human health impacts due to seismic events would likely be greater than the other two natural disasters. The primary type of human health risk for natural disasters would be physical injury from building debris. No changes in cancer risk should be expected for this alternative.

9.2.12.1 Chemical Accidents

Accident assessment would be the same as discussed in the Affected Environment section of this chapter. For all postulated accidents, chemical concentrations in the air plume released by potential chemical accidents would be below both ERPG-3 (life-threatening) and ERPG-2 (serious health effects) by the time the air plume reached the DP Road Tract, even under adverse weather dispersion conditions. Accordingly, chemical accidents would have no estimated public consequences at the tract.

9.2.12.2 Radiological Accidents

Accident assessment would be the same as discussed in the Affected Environment section of this chapter. The MEI doses would be greater than 500 millirem for 3 of 13 scenarios postulated in the LANL SWEIS. The estimated tract collective dose and estimated excess LCF would both be zero.

9.2.12.3 Natural Event Accidents

Accident assessment would be the same as discussed in the Affected Environment section of this chapter. Neither the wildfire nor any of the earthquakes would have chemical consequences, even under adverse weather dispersion conditions. The MEI dose resulting from the postulated wildfire would be less than 0.1 rem; the maximum dose from the most severe earthquake would be approximately 60 rem. Because there would be no residents and no public workers at the tract, the estimated tract collective dose and estimated excess LCF would both be zero for all five natural event accident scenarios.

9.2.13 Environmental Justice

For environmental justice impacts to occur, there must be high and adverse human health or environmental impacts that disproportionately affect minority or low-income populations. The human health analyses estimate that air emissions and hazardous chemical and radiological releases from normal LANL operations that would continue under the No Action Alternative would be expected to be within regulatory limits and that no excess LCFs would likely result. The human health analyses also indicate that radiological releases from accidents at LANL would not result in disproportionate adverse human health or environmental impacts. Therefore, such accidents would not have disproportionately high and adverse impacts on minority or low-income populations.

The analyses also indicate that socioeconomic changes resulting from implementing the No Action Alternative would not lead to environmental justice impacts. Employment and expenditures would remain unchanged from the baseline.

9.3 Proposed Action Alternative

9.3.1 Land Use

Direct consequences of the disposition of this tract would include the potential relocation of LANL archives and records currently being stored in one structure and the relocation of the site's environmental media monitoring stations to LANL land. It is likely that the record center buildings would remain on this tract (for example, through a lease-back arrangement). However, if the archives have to be relocated, they could be moved to existing buildings on other parts of LANL property, to other buildings leased from the County or private landowners, or a new storage building could be constructed. Any decision regarding construction of new facilities would be preceded by appropriate NEPA review. The direct consequences of the potential relocation of the archives, associated employees, and the monitoring station are minor and bounded by the indirect consequences. Therefore, the potential direct consequences of the transfer of ownership of the tract will not be discussed for each resource area other than those associated with

potential loss of Federal protection of cultural and ecological resources (see Sections 9.3.7 and 9.3.8, respectively).

Indirect consequences would be anticipated from the subsequent uses of the tract contemplated by the receiving party or parties. The contemplated uses and the associated consequences are discussed in the following sections.

9.3.1.1 Description of Contemplated Uses

The following paragraphs provide a description of the contemplated land uses. Land uses identified for the DP Road Tract include industrial and commercial development (see Figure 9.3.1.1-1) or commercial and residential development (see Figure 9.3.1.1-2).

Industrial and Commercial Development Land Use Scenario

Under the industrial and commercial development land use scenario, approximately 21 acres (9 hectares) of level acreage would be developed for heavy commercial and industrial land use. The remaining approximately 5 acres (2 hectares) of level area would be developed for commercial office space.

Commercial and Residential Development Land Use Scenario

Another possible scenario would include some of the above uses and the development of area at the tract as a trailer park for residential use. No specific proposal for reuse of the existing LANL archive buildings is identified. The area could be used for commercial and industrial warehouses, offices, and administrative purposes, or the buildings could be razed (Figure 9.3.1.1-2). Table 9.3.1.1-1 and Table 9.3.1.1-2 summarize the attributes of the contemplated land uses for the DP Road Tract.

Table 9.3.1.1-1. Attributes of Future Land Use for the DP Road Tract Under the Industrial and Commercial Land Use Scenario

INDUSTRIAL AND COMMERCIAL DEVELOPMENT
• Approximately 21 acres (9 hectares) would be developed for heavy commercial and industrial land use. • Approximately 5 acres (2 hectares) would be developed for office space. • Remaining 24 acres (10 hectares) are too steep to be developed. • When fully developed, land would be occupied by 40 new businesses with 900 total employees and 24 vehicles.

Table 9.3.1.1-2. Attributes of Future Land Use for the DP Road Tract Under the Commercial and Residential Land Use Scenario

COMMERCIAL AND RESIDENTIAL DEVELOPMENT
• Approximately 20 acres (8 hectares) would be developed as a trailer park (mobile homes). • Approximately 6 acres (2 hectares) would be developed for office space. • Remaining 24 acres (10 hectares) are too steep to be developed. • When fully developed, the trailer park would be home to 160 mobile homes, 400 new residents, and 330 personal vehicles. • When fully developed, the tract would be occupied by 10 new businesses with 225 total employees.

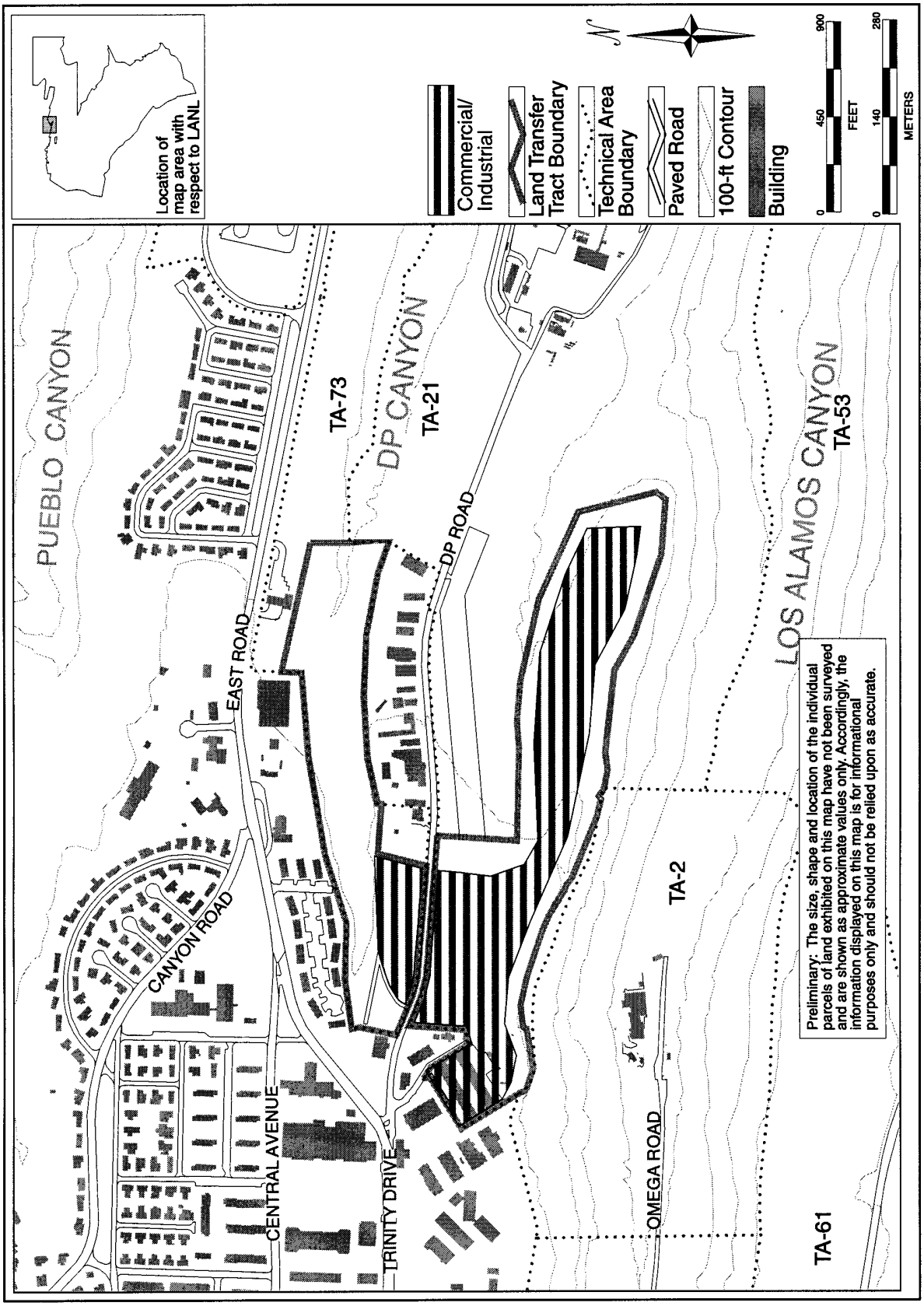

Figure 9.3.1.1-1. DP Road Tract Industrial and Commercial Land Use.

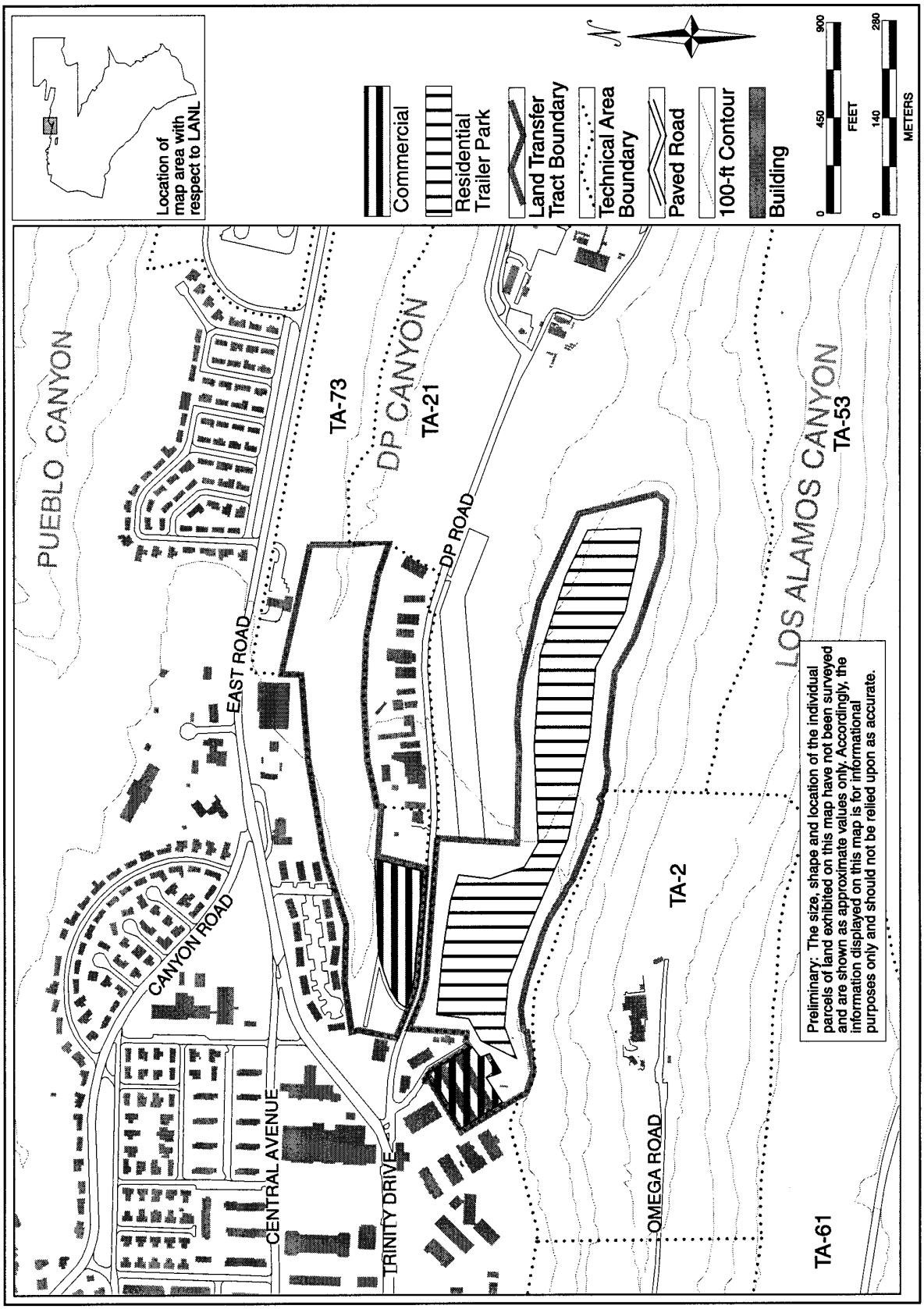

Figure 9.3.1.1-2. DP Road Tract Commercial and Residential Land Use.

9.3.1.2 Environmental Consequences of the Contemplated Uses

Development locations at the tract are limited by topography. Land use on the relatively level portions of the tract would change from previously disturbed, but mostly undeveloped, buffer land. The anticipated change in land use, as described for the industrial and commercial or the commercial and residential development scenarios, would be compatible with both existing and adjacent land use.

9.3.1.3 Environmental Restoration

No additional restoration actions would be required under the Proposed Action Alternative because restoration activities must occur before the tract would be considered suitable for conveyance or transfer. Restoration may occur under an accelerated schedule.

9.3.2 Transportation

9.3.2.1 Environmental Consequences of the Contemplated Uses

Industrial and Commercial Development Land Use Scenario

The industrial and commercial development land use scenario anticipates development of additional office and industrial facilities along DP Road. The Institute of Transportation Engineers (ITE) land use codes used to estimate the trips generated by these proposed developments were 130, industrial park and 750, office park. These ITE land use codes allow estimation of the trips generated by these facilities based on the number of acres proposed for each land use type.

Table 9.3.2.1-1 shows the number of trips the ITE Trip Generation Manual (ITE 1997) estimates would be generated by this development.

As shown in Table 9.3.2.1-1, the proposed industrial and commercial development could add an additional 296 entering trips to DP Road and Trinity Drive in the weekday morning peak hour and add an additional 295 exiting trips in the weekday evening peak hour. This combination of land uses may also add 2,312 trips on Trinity Drive and East Road.

Commercial and Residential Development Land Use Scenario

The commercial and residential development land use scenario anticipates establishment of a trailer park similar to the one that previously occupied a portion of the DP Road Tract. A trailer density of 8 per acre with a total of 160 units is assumed. The commercial development use is anticipated to be an office park of 5 acres (2 hectares). The ITE land use codes used to estimate the trips generated by these proposed developments were 240 and 750, respectively.

As shown in the table, the commercial and residential development could add 155 entering trips to DP Road and Trinity Drive in the weekday morning peak hour and an additional 178 exiting trips in the weekday evening peak hour. This combination of land uses also may result in an additional 1,941 trips on Trinity Drive and East Road.

Adding these trips to those already on the transportation network would result in approximately 12,700 and 12,300 trips on Trinity Drive and East Road for the industrial and commercial, and the commercial and residential land use scenarios, respectively. The LOS for the two-lane section of Trinity Drive and East Road is LOS E in the year 2018 for both of these combinations of land uses. This LOS represents the maximum capacity of the road and is the operating condition just prior to traffic jam conditions. It is likely that the DP Road-Trinity Drive intersection would not be adequate in its current configuration, and reconstruction of

Table 9.3.2.1-1. Estimated Increase in Traffic for the Contemplated Land Use for the DP Road Tract

ITE ESTIMATED TRAFFIC VOLUMES FOR INDUSTRIAL AND COMMERCIAL DEVELOPMENT SCENARIO								
Land Use	ITE Land Use Code	24 Hour Two-Way Volume	Morning Peak Hour Trips		Evening Peak Hour Trips		Saturday Peak Hour Trips	
			Enter	Exit	Enter	Exit	Enter	Exit
Industrial – 21 acres (9 hectares)	130	1,311	175	36	46	172	31	66
Office – 5 acres (2 hectares)	750	1,001	121	11	22	123	9	3
Total		2,312	296	47	68	295	40	69
ITE ESTIMATED TRAFFIC VOLUMES FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENT SCENARIO								
Residential – 20 acres (8 hectares)	240	770	13	51	56	34	46	40
Office – 6 acres (2 hectares)	750	1,171	142	12	25	144	11	3
Total		1,941	155	63	81	178	57	43

this intersection would be necessary, possibly including the addition of a traffic signal.

9.3.3 Infrastructure

9.3.3.1 Environmental Consequences of the Contemplated Uses

Industrial and Commercial Development Land Use Scenario

The indirect environmental impacts with regard to utilities and infrastructure resulting from this alternative would fall into two categories: (1) increased utility usage and (2) ground disturbance resulting from construction of new facilities. The utility usage would increase as shown in Table 9.3.3.1-1. It is not anticipated that these increases would exceed the capacity of any utility in the region. Installation of new utility facilities and upgrades to existing ones would require creation of trenches and access and maintenance roads. The construction of roads, parking areas, and buildings, and extension of utility lines would cause soil disturbance. Refer to Section 9.3.9 of this chapter for detail on impacts resulting from ground disturbance from new construction.

Commercial and Residential Development Land Use Scenario

The indirect environmental impacts with regard to utilities and infrastructure resulting from this alternative would fall into two

Table 9.3.3.1-1. Estimated Increase in Utility Usage for the Industrial and Commercial Land Use Scenario on the DP Road Tract

	PEAK POWER mw	ELECTRICITY gwh	GAS mcf (mly)	WATER mgy (mly)	SEWAGE (BAYO) mgy (mly)	MSW tpy (mty)
Estimated annual increase	0.4	2.3	22 (623)	20 (76)	9 (34)	44 (40)
Available system capacity	5	277	5,040 (142,700)	297 (1,125)	135 (511)	NA

Notes: mw = megawatts, gwh = gigawatt-hours, mcf = million cubic feet, mly = million liters per year, mgy = million gallons per year, tpy = tons per year, msw = municipal solid waste, mty = metric tons per year

categories: (1) increased utility usage and (2) ground disturbance resulting from construction of new facilities. The utility usage would increase as shown in Table 9.3.3.1-2. It is not anticipated that these increases would exceed the capacity of any utility in the region.

Installation of new utility facilities and upgrades to existing ones would require creation of trenches and access/maintenance roads. The construction of roads, parking areas and buildings, and extension of utility lines would cause soil disturbance. Refer to Section 9.3.9 for detail on impacts resulting from ground disturbance from new construction.

9.3.4 Noise

9.3.4.1 Environmental Consequences of the Contemplated Uses

Industrial and Commercial Development Land Use Scenario

This development is estimated to result in an increase of as many as 900 new direct jobs (DOE 1997a, page 1), which would increase traffic flow. Maximum noise from traffic would not be expected to increase significantly, but traffic noises would likely be present for a greater portion of the day as the new employees arrive at work, exit and return from lunch, perform daily errands, and return home in the afternoon.

Construction of the new commercial and industrial facilities would, however, increase ambient noise levels along DP Road. Construction of new facilities would entail ground clearing, excavation, laying of foundations, erection, and finishing work. The use of heavy equipment such as front-end loaders, concrete mixers, and jackhammers would produce noise levels ranging from 74 to 95 dBA at a distance of 50 feet (15 meters) from the construction site. (DOE 1997a, page 36).

Commercial and Residential Development Land Use Scenario

Commercial and residential development would represent no appreciable difference in ambient noise levels. As a temporary activity, construction would be expected to increase noise levels from 74 to 95 dBA at a distance of 50 feet (15 meters) from the construction site. This noise would be present for longer times during the day because more vehicles would be using DP Road. Once development construction activities have been completed, however, ambient noise levels should return to about 50 dBA.

Table 9.3.3.1-2. Estimated Increase in Utility Usage for the Commercial and Residential Land Use Scenario on the DP Road Tract

	PEAK POWER mw	ELECTRICITY gwh	GAS mcf (mly)	WATER mgy (mly)	SEWAGE (BAYO) mgy (mly)	MSW tpy (mty)
Estimated annual increase	0.3	1.6	26 (736)	21 (79)	10 (38)	155 (140)
Available system capacity	5	277	5,040 (142,700)	297 (1,125)	135 (511)	NA

Notes: mw = megawatts, gwh = gigawatt-hours, mcf = million cubic feet, mly = million liters per year, mgy = million gallons per year, tpy = tons per year, msw = municipal solid waste, mty = metric tons per year

9.3.5 Visual Resources

9.3.5.1 Environmental Consequences of the Contemplated Uses

Contemplated uses include industrial and commercial uses or commercial and residential uses. These uses would result in similar impacts. The current moderate public value for the Scenic Class III visual resources and low public value for the Scenic Class IV visual resources would be maintained or improved through planned development. No major impacts to the current visual resources would be anticipated.

9.3.6 Socioeconomics

9.3.6.1 Environmental Consequences of the Contemplated Uses

Industrial and Commercial Development Land Use Scenario

The use of this tract for industrial and commercial uses would generate additional employment in the ROI, which would increase ROI income. There would be minor temporary increases in employment resulting from construction of new facilities. This would, in turn, generate increases in regional income. These changes would be temporary, lasting only the duration of the construction period. Because the majority of the jobs would be filled by the existing ROI labor force, there would be no increase in ROI population or impact on housing demand or public services.

Once the new facilities were operational, there would be additional increases in ROI employment and income. Approximately 900 workers would be employed on the tract, and a total of 1,200 jobs would be generated in the ROI, which in turn would increase ROI income. Because these jobs would be filled by the existing ROI labor force, there would be no impact on area population or increase in the demand for housing or public services in the ROI.

Commercial and Residential Development Land Use Scenario

Under this scenario, the impacts from construction would be similar to the industrial and commercial development scenario. However, fewer long-term jobs would be generated because there would be fewer businesses on the land. Approximately 225 workers would be employed on the tract, and a total of 370 jobs would be generated in the ROI, which in turn would increase ROI income. Because these jobs would be filled by the existing ROI labor force, there would

be no impact on area population or increase in the demand for housing or public services in the ROI.

9.3.7 Ecological Resources

Direct impacts of the conveyance or transfer itself would be limited to the changes in responsibility for resource protection. Environmental review and protection processes for future activities would not be as rigorous as those which govern DOE activities.

9.3.7.1 Environmental Consequences of the Contemplated Uses

Industrial and Commercial Development Land Use Scenario

Approximately 26 acres (11 hectares) of ponderosa pine forest and pinyon-juniper woodland (both containing open shrub, grassland, and wildflower areas) would be lost under full buildout of commercial and residential or and industrial and commercial development. Highly mobile wildlife species or wildlife species with large home ranges (such as deer, elk, and birds) would be able to relocate to adjacent undeveloped areas. However, successful relocation may not occur due to competition for resources to support the increased population and the carrying capacity limitations of areas outside the proposed development area. Species relocation may result in additional pressure to lands already at or near carrying capacity. The impacts could include overgrazing, stress, and overwintering mortality. For less-mobile species (reptiles, amphibians, and small mammals), direct mortality could occur during the actual construction event or ultimately result from habitat alteration. Acreage used for the development also would be lost as potential hunting habitat for raptors and other predators. In addition to the area to be disturbed, there would be a decrease in quality of the habitat immediately adjacent to the proposed development due to increased noise level, traffic, lights, and other human activity, both pre- and post-construction. One little-addressed consequence of urban development is the influence of domestic animals upon wildlife populations. For example, free-roaming domestic cats may kill more than 100 animals each year. Studies have shown that approximately 60 percent of the wildlife cats kill are small mammals; 20 percent are birds (predation at bird feeders can be substantial; one Virginia study estimated 28 kills per urban cat per year); and 10 percent are amphibians, reptiles, and insects. Due to the presence of coyotes in the Los Alamos Canyon area, predation by cats would tend to be limited to within developed and closely adjacent natural areas (Goldsmith et al. 1991; Crooks 1997-98; and CSBC 1998). Free-ranging domestic dogs are known to harass and disrupt the activities of many wildlife species and are documented to have caused mortality in animals such as deer and foxes (Goldsmith et al. 1991). The loss of acreage due to development would result in a reduction of breeding and foraging habitat for wildlife currently utilizing the property.

There are three species that are Federal-listed as threatened or endangered that may potentially use the DP Road Tract: the bald eagle, American peregrine falcon, and Mexican spotted owl. With respect to the bald eagle, this area has a very low level of potential use for foraging. Development of this tract, which is within the AEI for both the American peregrine falcon and Mexican spotted owl, could alter foraging behavior of these species. Loss of the entire tract as foraging habitat would decrease the total available Mexican spotted owl, American peregrine falcon, and bald eagle foraging habitat by approximately 24 acres (10 hectares), or 0.9 percent of the available foraging habitat on DOE-LANL property. Mexican spotted owl habitat in the Los Alamos Canyon and Pueblo Canyon AEI and American peregrine falcon AEI habitat in Pueblo Canyon would be affected. For the

Mexican spotted owl, approximately 28 acres (11 hectares) of core habitat and 25 acres (10 hectares) of buffer habitat in the Los Alamos Canyon AEI and approximately 23 acres (9 hectares) of Pueblo Canyon AEI buffer habitat that overlaps the Los Alamos Canyon AEI could be affected. American peregrine falcon AEI core and buffer habitat, 7.5 and 17.0 acres (3 and 7 hectares), respectively, would be affected by the Proposed Action Alternative (PC 1999d). Because direct entry into the adjacent Los Alamos Canyon habitat is possible by descending a steep cliff face along an established trail, increased recreational use is expected to be occur. Recreational effects to the adjacent Los Alamos Canyon natural habitat are projected to occur especially if the residential use is pursued.

Recreational activities in or near Los Alamos Canyon wildlife habitat may cause some animals to alter their activity and feeding patterns, potentially resulting, for some species, in increased stress, decreased reproduction, or the temporary or permanent abandonment of the affected area.

The watershed management approach to natural resource management requires the integration of natural resource management plans across several land management agencies. The current lack of a natural resources management plan by either the County of Los Alamos or the Pueblo of San Ildefonso would impede the development of an integrated, multiagency approach to short- and long-term natural resource management strategies for the Los Alamos Canyon watershed.

The LANL Threatened and Endangered Species Habitat Management Plan would no longer be in effect for this area—thereby potentially reducing the protection afforded threatened and endangered species and their potential habitat in this area.

Commercial and Residential Development Land Use Scenario

The commercial and residential development scenario would be similar in impacts to that of the industrial and commercial development use.

9.3.8 Cultural Resources

Direct impacts of the conveyance and transfer would result from the transfer of known and unidentified cultural resources out of the responsibility and protection of the DOE.

First, under the Criteria of Adverse Effect (36 Code of Federal Regulations [CFR] 800.5(a)(1)), the transfer, lease, or sale of NRHP-eligible cultural resources out of Federal control is an adverse effect. Eligible cultural resources are present in the DP Road Tract, and thus could be directly impacted by the Federal action.

Second, the conveyance and transfer of this tract could potentially impact the cultural resources by removing them from future consideration under the *National Historic Preservation Act.*

Third, the disposition of this tract may affect the protection and accessibility to Native American sacred sites and sites needed for the practice of any traditional religion by removing them from consideration under the *Religious Freedom Restoration Act, American Indian Religious Freedom Act,* and Executive Order 13007, "Indian Sacred Sites." Finally, the disposition of this tract would affect the treatment and disposition of any human remains, funerary objects, sacred objects, and objects of cultural patrimony that may be discovered on the tract. This impact would result from removing these items from consideration under the *Native American Graves Protection and Repatriation Act*, or from changing the way this act is applied to these remains and objects. Indirect consequences are discussed in the following sections.

9.3.8.1 Environmental Consequences of the Contemplated Uses

Indirect impacts would be anticipated from the land uses contemplated for the DP Road Tract by the receiving parties. The two land uses identified for the DP Road Tract include (1) mixed industrial and commercial development and (2) commercial and residential development. This analysis reflects the broad, planning-level impacts anticipated from each contemplated use.

Industrial and Commercial Development Land Use Scenario

Cultural resources are present in the tract and adjacent areas that would be impacted by the contemplated land use scenario.

Industrial and commercial development would disturb any cultural resources present due to construction, grading, and trenching. These impacts would include the potential destruction of buildings, archaeological sites, and TCP locations. Resources avoided by construction may become isolated or have their setting disturbed by the introduction of elements out of character with the resource, such as visual and audible intrusions. The development of land may cause changes to the presence or integrity of, or access to natural resources utilized by traditional communities for subsistence, religious, or other cultural activities.

Commercial and Residential Development Land Use Scenario

The commercial and residential development scenario is similar to the industrial and commercial development scenario in impacts but includes the development of a residential trailer park and additional impacts of access to cultural resources.

The introduction of additional full-time residents of the trailer park would increase access to cultural resources present nearby. Increased access could cause possible destruction and damage to resources, vandalism, unauthorized collection of materials and artifacts, and disturbance of traditional practices and ceremonies.

9.3.9 Geology and Soils

9.3.9.1 Environmental Consequences of the Contemplated Uses

Impacts to geology and soils would consist of disturbing the soil to upgrade utilities and roadways for the new development and any removal of existing structures or constructing of new structures. Any existing or newly constructed structures would be vulnerable to greater than magnitude 7 seismic events and the stability of the canyon rim must be considered. As with the No Action Alternative, the sparse vegetation and heavy development of the tract would limit any impact on increased soil erosion due to wildfire.

9.3.10 Water Resources

9.3.10.1 Environmental Consequences of the Contemplated Uses

Both of the contemplated land uses for the DP Road Tract, a combination of industrial and commercial uses, or a combination of commercial and residential uses, would result in the same indirect consequences.

The contemplated land uses would not affect groundwater quality or quantity beneath the tract, but any associated increased water usage may contribute to the overall regional water level decline and possibly result in the degradation of water quality within the aquifer.

Development and construction may potentially affect surface water quality within and downstream of the tract. Surface water quality may be impacted if motor oil, gasoline, or other such contaminants wash from paved areas into the drainage during storm events. Also, runoff may have more erosive power if it is flowing across areas that

have been denuded, thereby transporting more sediment into the drainage.

9.3.11 Air Resources

9.3.11.1 Environmental Consequences of the Contemplated Uses

Industrial and Commercial Development Land Use Scenario

One possibility is for the DP Road Tract to be developed both commercially (such as office buildings) and industrially. It is assumed, however, that there would be no substantial emissions of hazardous or other chemical pollutants or radioactive air pollutants from new activities at the tract. Accordingly, air quality at the DP Road Tract would continue to be primarily affected by offsite activities such as vehicle emissions and by LANL operations at TA 21 to the east of the tract and at the LANSCE facility on the mesa immediately to the south.

The dominant source of criteria pollutants would continue to be traffic along Trinity Drive and DP Road, which would increase under this development scenario. However, it is unlikely that these additions to regional activity would cause significant increases in ambient air concentrations of criteria pollutants. Ambient air quality should remain within standards established by EPA and the State of New Mexico for criteria pollutants.

Assuming that commercial and industrial activities at the DP Road Tract would result in no substantial emissions of hazardous and other chemical pollutants, then concentrations of these chemicals at the tract would be the result of other offsite activities. Data demonstrate that about 130 different chemicals have been or are being used at TA 21, and about 90 at the LANSCE. (The tract also abuts the TA 2 Omega West reactor, on the floor of Los Alamos Canyon, but there would be no emissions of chemical air pollutants from this idled facility.) Chemical emissions from activities at both of these technical areas, however, would result in short-term exposures from inhalation of chemical air pollutants at points along the current boundaries of the technical areas estimated to be less than health-based standards. Likewise, long-term exposures (for example, sensitive receptors in Los Alamos and nearby areas) also would be estimated to be less than health-based standards (DOE 1999c, Chapter 5).

With no emissions of radioactive air pollutants from activities at the tract itself, doses from radioactive air pollutants would remain the same as in the No Action Alternative. Specifically, air concentrations at the DP Road Tract would deliver a dose of approximately 2.5 millirem per year to people residing there year-round, or about one-fourth of the EPA standard (DOE 1999c, Chapter 5).

Commercial and Residential Development Land Use Scenario

One contemplated land use for the DP Road Tract is primarily residential development, with only 5 acres (2 hectares) developed commercially. For criteria pollutants, ambient air concentrations would continue to comply with Federal and/or State standards. Chemical air concentrations would continue to be below health-based standards. Inhalation doses from radioactive air pollutants would continue to be an estimated 2.5 millirems per year. However, the residential use (160 mobile homes and 400 residents) would have less of an impact on air quality than industrial activities. In short, air quality would be slightly better than in the case of all industrial and commercial development.

9.1.1.2 Global Climate Change

Industrial and Commercial Development Land Use Scenario

New businesses would require some commercial vehicles (pick-up trucks and vans), and would have heating requirements.

The LANL archive center also would continue operations. As a result of development, tract emissions of greenhouse gases would increase appreciably from 400 tons (363 metric tons) per year in the No Action Alternative to 1,800 tons (1,633 metric tons) per year of carbon dioxide.

Commercial and Residential Development Land Use Scenario

An alternative land use is to develop part of the tract primarily for residential use. Approximately 20 acres (8 hectares) would be developed as a trailer court, hosting an estimated 160 trailers, 400 new residents, and 330 personal vehicles. Office buildings would be developed on the remaining 6 acres (2 hectares). The LANL archive center also would continue operations. Carbon dioxide sources would include natural gas used for residential and office heating, and personal and commercial vehicles. As a result of this development, tract emissions of greenhouse gases would increase further from levels in the No Action Alternative, and would be estimated at 3,350 tons (3,038 metric tons) per year of carbon dioxide.

9.1.12 Human Health

9.1.12.1 Environmental Consequences of the Contemplated Uses

Consequences would be the same as in the No Action Alternative. Radiation doses received by new residents at this tract would be an estimated 2.5 millirem per year (DOE 1999c, Chapter 5). However, because this tract lies within the radiation site evaluation circle for TA 21, and potential radiological impacts of the disposition and subsequent development must first be evaluated along with possible mitigation techniques, doses may be greater in the case of an accident at TA 21.

No changes in cancer risk would be expected under normal operational conditions at LANL. Nonradiological exposures would be expected to be below health-based standards. Residents would face the same hazards to floods and wildfires as workers now do, and should have adequate time to evacuate the premises. Seismic events come without warning, and would carry risks of physical injury from building collapses.

Residential development would bring 400 new residents into closer proximity to LANL facilities, thereby increasing the number of members of the public exposed to radiological and chemical air pollutants emitted by LANL operations. Residential development also would introduce more sensitive receptors, such as children and pregnant females, to an area that currently hosts only LANL-related workers. While all doses would be within health-based standards established by other Federal agencies, the closer proximity would increase radiation dose received by the collective population within a 50-mile (80-kilometer) radius of LANL. In addition, closer public proximity would result in greater public consequences from some hypothetical accidents at LANL facilities. These same human health consequences result from commercial development of the DP Road Tract, but are lessened by two factors. Workers would be present less often than residents, and the work force would contain fewer sensitive receptors.

9.1.12.2 Chemical Accidents

Accident assessment would be the same as described in the No Action Alternative. For all postulated accidents, chemical concentrations in the air plume released by potential chemical accidents would be below both ERPG-3 (life-threatening) and ERPG-2 (serious health effects) by the time air plume reached the DP Road Tract, even under adverse weather dispersion conditions. Accordingly, chemical accidents would have no estimated public consequences at the tract.

9.1.12.3 Radiological Accidents

Regardless of land use subsequent to transfer of ownership, the MEI dose at this tract would be the same as described in the No Action Alternative. MEI doses would be greater than 100 millirem for 4 of 13 scenarios: 24 rem for RAD-02 (natural gas pipeline failure, explosion, and fire at the CMR Building), 320 millirem for RAD-07 (fuel leak and fire at the Waste Characterization, Reduction, and Repackaging [WCRR] Facility), 10 rem for RAD-12 (plutonium release from the Dual Axis Radiographic Hydrodynamic Test [DARHT] Facility during an earthquake), and 1.6 rem for RAD-15B (explosion followed by fire in an entire wing of the CMR Building). In the No Action Alternative, the MEI doses would be received by LANL employees; however, if the tract is transferred and developed, the likely receptor would be a member of the public.

Under both contemplated land use scenarios for the DP Road Tract, average occupancy (370 people) would be approximately the same, and the tract collective dose and excess LCFs would be approximately the same regardless of the type of development that actually occurs. Consequences, however, would be appreciably higher than those estimated for the No Action Alternative (for which collective tract dose and excess LCFs would both be zero). For example, the LANL SWEIS estimated a collective population dose of 120,000 person-rem for all people living within a 50-mile (80-kilometer) radius of LANL, resulting in an estimated 57 excess LCFs for hypothetical accident RAD-02. This would increase by another 7,700 person-rem and four LCFs if DP Road were developed. Table 9.3.12.3-1 compares the estimated additional consequences of all hypothetical radiological accidents.

9.1.12.4 Natural Event Accidents

Natural event accidents would have no estimated chemical consequences at the DP Road Tract.

For the postulated accidents (wildfire and four earthquake scenarios), chemical concentrations in the air plume released by potential chemical accidents would be below both ERPG-3 (life-threatening) and ERPG-2 (serious health effects) by the time the air plume reached the tract, even under adverse weather dispersion conditions.

The MEI doses would be the same as in the No Action Alternative, regardless of land use subsequent to transfer of ownership. The maximum dose resulting from the postulated wildfire would be less than 0.1 rem; that from the most severe earthquake, however, would be approximately 60 rem.

There are two possible land uses for the DP Road Tract. Average occupancy (370 people) would be approximately the same under both scenarios, so the tract collective dose and excess LCF would be the same regardless of the development that actually occurs. Consequences, however, would be appreciably higher than those estimated for the No Action Alternative (for which collective tract dose and excess LCF would both be zero). If the DP Road Tract were developed, then the most severe earthquake would result in an estimated tract collective dose greater than 20,000 person-rem, and approximately 20 excess LCFs. These exposures would be in addition to those estimated in the LANL SWEIS (DOE 1999c) (340,000 person-rem and 230 excess LCFs for RAD-03B).

9.1.13 Environmental Justice

For environmental justice impacts to occur, there must be high and adverse human health or environmental impacts that disproportionately affect minority or low-income populations. The human health analyses for the contemplated uses estimate

Table 9.3.12.3-1. Additional Accident Consequences Associated with Contemplated Land Use on the DP Road Tract

				BOTH DEVELOPMENT SCENARIOS[a]		SWEIS ESTIMATES[b]	
Accident Scenario	Accident Location	Facility	Frequency per Year	Collective Dose[c]	Excess LCF	Collective Dose[c]	Excess LCF
RAD-01	54-38	RANT	1.6×10^{-3}	20	0.01	72	0.04
RAD-02	03-29	CMR	1.5×10^{-6}	7,700	3.8	120,000	57
RAD-03	18-116	Kiva #3	4.3×10^{-6}	15	0.01	100	0.06
RAD-05	21-209	TSTA	9.1×10^{-6}	2	0	24	0.01
RAD-07	50-69	WCRR	3.0×10^{-4}	96	0.05	1,300	0.69
RAD-08	54-230	TWISP	4.3×10^{-6}	26	0.01	400	0.2
RAD-09A	54-226	TWISP	4.9×10^{-1}	0	0	4	0
RAD-09B	54-226	TWISP	4.9×10^{-3}	16	0.01	230	0.12
RAD-12	16-411	--	1.5×10^{-6}	3,700	1.9	35,800	18
RAD-13	18-116	Kiva #3	1.6×10^{-5}	23	0.01	160	0.08
RAD-15A	03-29	CMR	3.6×10^{-5}	29	0.01	175	0.09
RAD-15B	03-29	CMR	3.2×10^{-5}	520	0.26	3,400	1.7
RAD-16	03-29	CMR	3.5×10^{-6}	1	0	56	0.03

Notes: mrem = millirem, RANT = Radioactive Assay and Nondestructive Test, CMR = Chemistry and Metallurgy Research, TSTA = Tritium Systems Test Assembly, TWISP = Transuranic Waste Inspectable Storage Project

[a] In addition to doses estimated in the LANL SWEIS.

[b] For the entire population within a 50-mile (80-kilometer) radius of LANL.

[c] Person-rem.

that air emissions and hazardous chemical and radiological releases associated with LANL operations would be expected to be within regulatory limits and that no excess LCFs would likely result. The human health analyses also indicate that radiological releases from accidents would not result in disproportionate adverse human health or environmental impacts. Therefore, such accidents would not have disproportionately high and adverse impacts on minority or low-income populations with regard to implementing the contemplated land uses on the tract.

The analyses also indicate that socioeconomic changes resulting from implementing any of the proposed alternatives would not lead to environmental justice impacts. Under the Proposed Action Alternative, modest economic benefits would arise from the additional jobs created during construction and operation of the new facility. Secondary effects would include small increases in business activity and would likely increase revenues to local governments. Each of these impacts would be positive and would not disproportionately affect any single group.

The analysis of impacts to cultural resources indicates that TCPs could be present on the tract or in adjacent areas. If present, TCPs could be impacted by the conveyance or transfer or by subsequent land uses. Consultations to determine the presence of these resources have not been completed, and the degree to which these resources may be impacted has not been ascertained. Impacts to TCPs potentially may cause disproportionately high or adverse effects on minority or low-income communities, but these effects cannot be determined at this point in the consultation process.

9.1.14 Irreversible and Irretrievable Commitment of Resources

This section describes the major irreversible and irretrievable commitments of resources that can be identified at the level of analysis conducted for this CT EIS. A commitment of resources is irreversible when its primary or secondary impacts limit the future options for a resource. An irretrievable commitment refers to the use or consumption of a resource that is neither renewable nor recoverable for use by future generations.

The actual conveyance or transfer of the DP Road Tract would not immediately cause any irreversible or irretrievable commitments of resources. Subsequent development, under either contemplated land use, would, however, cause irreversible commitments of ecological habitat and cultural resources.

New development also would cause the irretrievable commitment of resources during construction and operation of the new businesses and during installation of infrastructure needed for the residential trailer court. Energy would be expended in the form of natural gas and electricity. Additional water also would be consumed. Construction of these buildings and related infrastructure would require the irretrievable commitment of standard building materials such as lumber and roofing materials.

9.1.15 Unavoidable Adverse Environmental Impacts

The actual conveyance or transfer of the DP Road Tract could result in the loss of certain Federal protections for cultural resources on the tract. Loss of these protections could be considered an unavoidable adverse impact to these resources because development of previously undisturbed areas could result in physical destruction, damage, or alteration of cultural resources on the tract. The conveyance or transfer of the tract also could result in the loss of certain Federal protections for ecological resources and consideration of these resources in planning future activities on the tract.

Subsequent development of the tract, either commercially or residentially, would have unavoidable adverse impacts in several resource areas. One such impact would be loss of ecological habitat within the tract itself.

Development also would cause adverse impact through increased need for and use of utilities. Increased demand for water, solid waste, and sewage treatment services would have adverse effects in the immediate Los Alamos region by lowering the aquifer level more quickly, shortening the remaining lifetime of the County landfill, and increasing both the quantities of sewage that require treatment and the quantities of treated sewage discharged to the environment. The environmental effects of increased demand for electricity and natural gas would be felt elsewhere (in the Four Corners region, for example), in the form of increased emissions of air pollutants in order to generate electricity. Increased consumption of natural gas adds to global climate change through increased emissions of carbon dioxide.

Development also would lead to increased traffic, either via an increase in personal vehicles in Los Alamos County (from residential development) or by increasing the

labor force within the County (through commercial development). Both land uses would result in slight increases in congestion and traffic noises. Noise levels would increase within the DP Road Tract, in frequency of occurrence and duration (into the night). The visual environment would deteriorate, especially on the undeveloped south leg of the tract.

Finally, residential development would bring 400 new residents into closer proximity to LANL facilities, thereby increasing the number of members of the public exposed to radiological and chemical air pollutants emitted by LANL operations. The location is not far from the Small Business Center Annex (on East Gate Drive), the location of LANL's MEI due to radiological air emissions from LANSCE on the adjacent mesa. While all doses would be within health-based standards established by other Federal agencies, the closer proximity also would increase the radiation dose received by the collective population within a 50-mile (80-kilometer) radius of LANL. In addition, closer public proximity would result in greater public consequences from some hypothetical accidents at LANL facilities.

9.1.16 Relationship Between Local Short-Term Use of the Environment and the Maintenance of Long-Term Productivity

The actual conveyance or transfer of the DP Road Tract would not immediately cause any specific impacts on short-term uses of the environment. The tract is located within the Los Alamos townsite, and is surrounded by already developed areas. Subsequent development, whether commercial or primarily residential, would therefore be compatible with long-term uses of the land.